

REMARKS

5 This amendment is respectfully submitted to place subject Application in condition for allowance. Claims 1, 2, 6, 9, 10 and 14 have been canceled without prejudice. Claims 23 to 27 have been entered to more distinctly claim the subject matter of the invention, and Claims 3 to 5, 7, 8, 11 and 12 have been amended to depend from an appropriate claim.

10 Responsive to objections of Examiner Medley, a clarification of term "R" for aryl oxygenates of types I to VIII has been stated at the bottom of page 11, and typographical errors at page 12, line 8 and Claim 14 have been corrected by replacement of "R1" with R.

15 At page 3 of the outstanding Office Action, Examiner avers that the "at least 5 percent of the oxygen is contained in cyclic benzylic diketones" limitation in claim 1 lacks support in claim 10, because the limitation of 5 percent is outside of the requirement of claim 10 that at least 10 percent of the oxygen is contained in cyclic benzylic ketones.

20 Applicants respectfully point out that the term "cyclic benzylic ketones" includes both monoketones and diketones. Thus the limitation that "at least 5 percent of the oxygen is contained in cyclic benzylic diketones" is within the 10 percent requirement of claim 10 that at least 10 percent of the oxygen is contained in cyclic benzylic ketones.

25 Claim 23 is directed to Applicants' for fuel or blending component of fuels which are liquid at ambient conditions, which composition comprises: as a predominant component organic distillates, which predominant component exhibits a suitable initial boiling point and contains less than 15 ppm sulfur; and one or more oxygen-containing organic compounds in amounts such that

the oxygen content of the fuel is in a range from about 0.2 percent to about 20 percent oxygen with the proviso that

$$[10^{\circ} \text{ C.} + (\text{IBP}) \text{ composition}] > (\text{IBP}) \text{ distillates},$$

5 where (IBP) composition is the initial boiling point of the composition and (IBP) distillates, is the initial boiling point of the distillates. Support for this claim is found in the Specification, for example, at page 8, lines 19 to 30, and canceled Claims 1 and 2.

10 Claim 24 recites Applicants' fuel for use in compression ignition internal combustion engines, comprising: as a predominant component organic distillates, and one or more oxygen-containing organic compounds in amounts such that the oxygen content of the fuel is in a range from about 0.2 percent to about 10 percent oxygen with the proviso that

$$[10^{\circ} \text{ C.} + (\text{IBP}) \text{ composition}] > (\text{IBP}) \text{ distillates},$$

15 where (IBP) composition is the initial boiling point of the composition and (IBP) distillates, is the initial boiling point of the distillates, and wherein the fuel exhibits a suitable flash point of at least 38° C. as measure by ASTM D93, and contains less than 15 ppm sulfur. Support for this claim is found in the Specification, for
20 example, at page 8, lines 26 to 30, page 9 lines 22 to 34, and canceled Claims 2 and 6.

Claim 25 recites Applicants' fuel for use in spark ignition internal combustion engines, comprising: as a predominant component organic distillates, and one or more oxygen-containing
25 organic compound selected from the group consisting of aryl oxygenates of type II and type III in amounts such that the oxygen content of the fuel is in a range from about 0.2 percent to about 10 percent oxygen, and wherein the fuel exhibits a suitable Reid vapor pressure of at least 6 psi and contains less than 15 ppm
30 sulfur. Support for this claim is found in the Specification, for

example, at page 10, lines 1 to 7, page 11 lines 7 to 22, and canceled Claim 9.

Claim 26 recites Applicants' composition for fuel or blending component for fuels which are liquid at ambient conditions, which
5 composition comprises: as a predominant component organic distillates which contain less than 15 ppm sulfur, and oxygen-containing organic compounds derived from natural petroleum in amounts such that the oxygen content of the fuel is in a range from about 0.2 percent to about 10 percent oxygen with the proviso that

10 $[10^{\circ} \text{C.} + (\text{IBP}) \text{ composition}] > (\text{IBP}) \text{ distillates},$

where (IBP) composition is the initial boiling point of the composition and (IBP) distillates, is the initial boiling point of the distillates, and wherein at least 10 percent of the oxygen is contained in cyclic benzylic ketones. Support for this claim is
15 found in the Specification and, for example, at page 8, lines 26 to 30, page 10 lines 8 to 21, and canceled Claim 10.

Claim 27 recites Applicants' composition according to claim 13 wherein at least 10 percent of the oxygen is further contained in Type II aryl oxygenates where R is hydrogen or a hydrocarbon radical
20 containing from 1 to about 10 carbon atoms.

In view of the amendments submitted herein and previous filed papers, it is the position of Applicants that the instant Application is in condition for allowance.

Claim Rejections - 35 U.S.C. § 102

25 In the outstanding Office Action, Claims 1 to 3 and 5 were rejected under 35 U.S.C. § 102(b), as being clearly anticipated by EP 0 905 217 A in the name of NIPPON OIL CO. LTD. Tokyo JP (EP '217). Applicants respectfully traverse these rejections.

The EP '217 reference of record is directed to an unleaded gasoline for direct injection gasoline engine formed by admixing methyl-t-butyl-ether (MTBE), t-amylethyl-ether (TAEE), or acetate (MPA) with a selected base gasoline having an initial
5 boiling point of 30.0° or 30.5° C.

At page 3 of the outstanding Office Action, Examiner avers that "wherein the organic oxygens added to the organic distillate is greater than 10° C. of the initial boiling point of the distillate".

While the initial boiling points (IBP) of the example
10 compositions are not reported in EP '217, the distillation property of the initial 10 percent temperature (T_{10}) for the base gasoline and comparable admixtures are within a range of about 6° C or less of the T_{10} temperature of base gasoline, for example 54.5° C for TAEE in a base gasoline which had a T_{10} temperature of 48.5° C.
15 However, Applicants respectfully point out that no quantitative change of initial boiling point can be determined from a change in the distillation property of a T_{10} temperature.

It is the position of Applicants that instant Claim 23 and dependent Claims 3 to 5 inclusive, are not anticipated by EP '217.

20 In the outstanding Office Action, Claims 1 and 4 were rejected under 35 U.S.C. § 102(b), as being clearly anticipated by U.S. Patent No. 5,807,413 in the name of Robert Jay Wittenbrink, Richard Frank Bauman, Daniel Francis Ryan, and Paul Joseph Berlowitz (Berlowitz). Applicants respectfully traverse these
25 rejections.

The Berlowitz reference of record describes converting a mixture of hydrogen and carbon monoxide to heavy paraffins in a slurry Fischer-Tropsch synthesis reactor, and separation of a boiling fraction to about 500° F, identified as "cold separator liquid"
30 (Berlowitz Example 1) that was converted according to Example 2

into lower boiling materials, via mild hydrocracking and hydroisomerization. As must be expected of a synthetic F-T product, the 382° to 640° F boiling range fraction of the Example 2 product, i.e., F-T Diesel fuel, was reported to contain 99.74 percent
5 by volume paraffins (alkanes), and 0.26 percent by volume aromatic, but was totally free of alcohols, naphthenes, olefins, and sulfur. None the less, Berlowitz claims a fuel that may contain no more than 5000 wppm, or 500 to 5000 wppm, alcohols as oxygen, no more than 10 percent by weight of olefins, no more than 0.05
10 percent by weight of aromatics, and less than 0.001 percent by weight of sulfur or nitrogen.

The Berlowitz reference of record does not disclose initial boiling point (IBP), flash point temperature, or any other analysis of compositions containing organic compounds in amounts such
15 that the oxygen content of the fuel is in a range from about 0.2 percent to about 10 percent oxygen.

It is the position of Applicants that instant Claim 23 and dependent Claim 4, are not anticipated by the Berlowitz reference of record (U.S. Patent No. 5,807,413).

20 In the outstanding Office Action, Claims 6 to 8 and 10 to 14 were rejected under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,807,413 (Berlowitz) as applied to claims 1 and 4 above, and further in view of U.S. Patent No. 4,723,963 in the name of William F. Taylor (Taylor) and U.S. Patent No. 6,010,545 in the
25 name of Brian William Davies, Rinaldo Capotti and Brid Dilworth, all of the UK (Davies et al.). Applicants respectfully traverse these rejections.

At page 4 of the outstanding Office Action, Examiner avers that "Taylor teaches diesel fuel having oxygenated cyclic benzylic
30 lactones, note column 6 at Table I for fluoroenone and other

lactone compounds providing the motivation for adding the cyclic benzylic ketones in Berlowitz fuels ...”.

5 Applicants respectfully point out that the Taylor reference of record does not disclose or suggest any diesel fuel containing oxygenated cyclic benzylic lactones, or other lactone compounds, as stated by Examiner.

10 The Berlowitz reference of record states that synthetic Diesel fuel containing “trace amounts of aromatics, e.g., less than about 0.05%,” have “surprisingly low particulate emissions characteristics” (Berlowitz, column 1, lines 5 to 8, and lines 44 to 52). The essence of the Berlowitz teaching of synthetic Diesel fuel, obtained via mild hydrocracking and hydroisomerization of a product from a Fischer - Tropsch process, is that the resulting compounds are virtually all saturated, meaning free of aromatics and olefins.

15 It is the position of Applicants that it would be error to read Taylor as providing the motivation for adding any cyclic benzylic compound to the Berlowitz fuel that is stated to beneficially contain only trace amount of aromatics.

20 The Davies at al. reference of record describes compositions having a major portion of a fuel oil and minor amounts of a carboxylic acid or and ester of a carboxylic acid, at least one polyoxyalkylene ester, ether, ester/ether and mixtures thereof.

25 It is the position of Applicants that instant Claims 24, 7, 8, 26, 11 to 13 and 27 are not disclosed or suggested by either Berlowitz, Taylor, or Davies et al. taken alone or in the combination relied upon by Examiner.

30 In the outstanding Office Action, Claim 9 was rejected under 35 U.S.C. § 103(a), as being unpatentable over EP 0 905 217 A NIPPON OIL CO. LTD. Tokyo JP as applied to claims 1 to 3 and 5

above, and further in view of EP 0 905 217 A NIPPON OIL CO. LTD. Applicants respectfully traverse these rejections.

Claim 9 has been canceled without prejudice. Claim 25 recites Applicants' fuel for use in spark ignition internal combustion engines, comprising: as a predominant component organic distillates, and one or more oxygen-containing organic compound selected from the group consisting of aryl oxygenates of type II and type III in amounts such that the oxygen content of the fuel is in a range from about 0.2 percent to about 10 percent oxygen, and wherein the fuel exhibits a suitable Reid vapor pressure of at least 6 psi and contains less than 15 ppm sulfur.

It is the position of Applicants that instant Claim 25 is not disclosed or suggested by the NIPPON OIL CO. LTD reference of record.

Applicants agree with Primary Examiner Medley that the references of record but not applied do not disclose or suggest Applicants patentable subject matter including, for example, fuel for use in spark ignition internal combustion engines, comprising: as a predominant component organic distillates, and one or more oxygen-containing organic compound selected from the group consisting of aryl oxygenates of Type II and Type III in amounts such that the oxygen content of the fuel is in a range from about 0.2 percent to about 10 percent oxygen, and wherein the fuel exhibits a suitable Reid vapor pressure of at least 6 psi and contains less than 15 ppm sulfur.

Base on the amendments submitted herein, and previously, and Paper No. 8 declaration under 37 CFR § 1.131, Applicants urge that Claims 2 to 5, 7, 8, 11 to 13 and 23 to 27 inclusive, all claims now presented, are in condition for allowance. Applicants respectfully request Primary Examiner Medley to pass subject application for allowance.

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Do not hesitate to contact Frederick S. Jerome whose telephone number is (630) 832-7974 (FAX (630) 832-7976) if additional assistance is needed regarding this paper or earlier papers for Applicants.

5 Applicants and their undersigned Attorney appreciate Examiner's attention and further consideration of this matter.

Respectfully submitted,

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Version of Amended Specification and
Claims with Markings to Show Changes Made

IN THE SPECIFICATION

- 5 At page 12 line 8, replace "R1" with -R-.

IN THE CLAIMS

3. (Once amended) The composition according to claim 23 [1]
wherein the predominant component is a mixture of organic
10 compounds derived from natural petroleum.

4. (Once amended) The composition according to claim 23 [1]
wherein the predominant component comprises alkanes containing
from 5 to about 15 carbon atoms of which at least about 85 percent
are normal alkanes.

- 15 5. (Once amended) The composition according to claim 23 [1]
further comprising an effective amount of one or more fuel additives
which enhance desired fuel properties.

7. (Once amended) The composition according to claim 24 [6]
wherein the fuel exhibits a suitable flash point of at least 49° C.

- 20 8. (Once amended) The composition according to claim 24 [6]
further comprising an effective amount of one or more Diesel fuel
additives selected from the group consisting of copolymers of ethylene
and vinyl acetate, which enhances cold flow properties of Diesel fuel.

- 25 11. (Once amended) The composition according to claim 26 [10]
wherein at least 5 percent of the oxygen is contained in cyclic benzylic
diketones.

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12. (Once amended) The composition according to claim 11 [10] further comprising an effective amount of one or more fuel additives which enhance desired fuel properties.